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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,694	07/16/2004	Renatus Josephus Van Der Vleuten	NL020029US	2762

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EXAMINER	
MOON, SEOKYUN	
ART UNIT	**PAPER NUMBER**
2629	

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/501,694	VAN DER VLEUTEN ET AL.	
	Examiner	Art Unit	
	Seokyun Moon	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☒ Claim(s) *1* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/16/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

`Arrangement of the Specification`

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

3. **Claim 1** is objected to because of the following informalities: "... *he area of said group of pixels, ...*".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lauer et al. (U.S. Pat. No. 5,523,769, herein after referred to as "Lauer") and Tamanoi (U.S. Pat. No. 5,565,885, herein after referred to as "Tamanoi"), and further in view of Kasai et al. (U.S. Pat. No. 6,587,120 B2, herein after referred to as "Kasai").

As to **claim 1**, Lauer [*Fig. 4*] teaches a display device ("*high resolution modular large screen display*"), which is provided with groups of pixels ("*module 50*") [*Col. 3 Lines 57-58* and *62-63*], drive means (a combination of "*processor 62*" and "*memory 64*") for driving pixels dependent on data to be displayed [*Col. 8 Lines 54-56*].

Lauer does not teach expressly that at least one semi-conductor device associated with each group of pixels is provided at the area of said group of pixels and is provided with the drive means and the data processing means.

However, Tamanoi [*Fig. 3*] teaches a method of driving a display with drivers of which driving circuitries are implemented on IC chips (which are semi-conductors) [*Col. 3 Lines 20-31*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to use IC chips to build Lauer's components required to drive Lauer's display as taught by Tamanoi to provide a method of designing a compact, thin, and light liquid crystal display device of low cost while the method does not require a printed circuit board [*Col. 2 Lines 1-4*].

Lauer modified by Tamanoi teaches a display device comprising a substrate ("*insulating resin films*") [*Tamanoi*: *Col. 3 Lines 25-28*].

Lauer modified by Tamanoi does not teach picture scaling means.

However, Kasai [*Fig. 7*] teaches picture scaling means ("*data converters 24, 25, and 26*") used to convert the resolution of data signals representing images to be displayed in a display device [*Col. 6 Lines 33-36*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to include Kasai's picture scaling means in the modified Lauer to implement a function of accepting an interface signal having a resolution different from that of display device for displaying the display data contained in the interface signal regardless of the type of display data [*Col. 1 Lines 47-52*].

As to **claim 2**, Lauer modified by Tamanoi and Kasai [*Kasai*: *Fig. 7* and *Fig. 11*] teaches the picture scaling means (*Kasai*: "*data converters 24, 25,* and *26*") comprising means (*Kasai*: "*resolution switching mean 57*") to determine the kind of scaling (*Kasai*: whether to receive inputs of "*reduced display data 55*" or "*enlarged display data 56*") to be performed [*Kasai*: *Col. 8 Lines 30-33*].

As to **claim 3**, using the broadest reasonable interpretation of the claim, it is not necessary for a group of data pixels to have different data for each pixel.

Therefore, if the group of the pixels have same data, then it is inherent to have same voltage for each of plural pixels in the group since each of plural pixels in the group displays the same data.

6. **Claims 4-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lauer, Tamanoi, and Kasai, and further in view of Nomura et al. (U.S. Pat. No. 4,866,520, herein after referred to as "Nomura").

As to **claim 4**, Kasai does not teach the picture scaling means determining intermediate voltages for neighboring pixels.

However, Nomura [*Fig. 1*] teaches picture scaling means (a combination of "*interpolator 22*" and "*selector 24*") determining intermediate voltages ("*interpolated voltage*") for adjacent lines of pixels ("*selector 24*" cyclically selects among even, odd, and interpolated lines of data for display) [*Col. 2 Lines 41-49* and *Abstract*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kasai's picture scaling means to implement Nomura's interpolator and selector to provide interpolated voltage for neighboring pixels, which achieves the

increment of the number of lines of pixels per picture [*Abstract Lines 9-10*], and thus provides an improved method for converting video signals of a first resolution to video signals of another resolution [*Col. 2 Lines 15-17*].

As to **claims 5** and **6**, Kasai modified by Nomura discussed with respect to the rejection of claim 4 teaches the picture scaling means determining intermediate voltages for pixels in neighboring lines.

Kasai does not expressly disclose the adjacent lines to be rows or columns.

However, the adjacent lines applied with the intermediate voltages are to be rows when the picture scaling is performed or executed in vertical direction and thus the image to be displayed expands to upper and lower area of the display. On the other hand, the adjacent lines applied with the intermediate voltages are to be columns when the picture scaling is performed or executed in horizontal direction and thus the image expands to left and right side area of the display.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify Kasai's adjacent lines of pixels provided with intermediate voltages to be rows or columns depending on the direction that the image to be displayed expands when the picture scaling is executed.

As to **claim 7**, Lauer as modified by Tamanoi inherently teaches a connection between neighboring semiconductor devices (the "*IC chips*" functioning *Lauer*'s "*communication interface 60*") [*Col. 3 lines 65-67* and *Col. 4 Lines 1-5*].

7. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lauer, Tamanoi, Kasai, and further in view of Nomura and Anwyl et al. (U.S. Pat. No. 5,576,738, herein after referred to as "Anwyl").

Lauer [*Fig. 4*] teaches the driving means (a combination of "*processor 62*" and "*memory 64*") comprising a frame memory ("*memory 64*") [*Col. 8 Lines 54-56*].

Lauer does not teach the driving means comprising means to detect changes between the contents of subsequent frames.

However, Anwyl [*Fig. 3*] teaches a driving mean (a combination of "*activity detector 403*", "*microprocessor 402*", "*timer 405*", and "*memory 404*") for a display comprising a mean ("*activity detector 403*") to detect changes between the contents of subsequent frames [*Col. 1 Lines 37-43*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the driving structure of Lauer's display implemented in one of the plural displays, as taught by Anwyl to allow Lauer's display to detect changes between the contents of subsequent frames, thus to provide power management function in the display device [*Col. 1 Lines 45-59* and *Col. 4 Line 58- Col. 5 Line 17*].

8. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lauer and Tamanoi as applied to claim 1 above, and further in view of Takeda (U.S. Pat. No. 4,903,013, herein after referred to as "Takeda").

Lauer as modified by Tamanoi does not specify expressly the means for recognizing the location to have a read-only memory.

However, Takeda [*Fig. 1*] teaches a display system having a plurality of display areas having RAM (which is a programmable memory) as an addressing mean [*Abstract*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to specify the modified Lauer's means for recognizing the location to comprise RAM since RAM is a known storage device providing large memory while requires less space to build on electronic circuits.

8. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lauer and Tamanoi as applied to claim 1 above, and further in view of Nakano et al. (U.S. Pat. No. 6,529,181 B2, herein after referred to as "Nakano").

Lauer modified by Tamanoi does not disclose expressly the drive means to have a bus structure.

However, Nakano [*Fig. 15A*] teaches a bus structure used in driving means for connection to transmit data signals representing the images to be displayed [*Col. 3 Lines 3-5*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a bus structure in Lauer's drive means for the connection transmitting image signals to reduce the number of wirings required for data / image communication, thus to simplify the internal circuit structure of the drive means.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 14, 2006
S.M.
Division 2629

AMR A. AWAD
PRIMARY EXAMINER